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ABSTRACT

Recent research on adult education and literacy development (AELD) programs in workplaces that teach English, reading, and mathematics skills integrated with job knowledge indicates they contribute to improved job-related literacy and mathematics skills, improved job productivity, and increased reading to children at home. AELD programs can help adults improve their children's schooling; adults improve their own and their children's health; and the brain grow and stay healthy during adulthood. Mainstreaming the adult education and literacy system (AELS) is central to achieving national education goals. Cultural beliefs about cognitive development and when it is possible and/or desirable to develop it contribute to the marginalization of AELD students and the AELS. Misunderstandings about the AELS have contributed to its being considered by many as a temporary, remedial, second-chance system for undereducated, marginalized adults that will not be needed once schools are reformed and all children master basic skills before graduating. However, the rapidly increasing growth in knowledge has had and will have the effect of constantly increasing the number of adults who can benefit from the nonformal, learner-friendly AELS. Four steps to take to strengthen the AELS as a strategy for making the nation smarter are increase funding, increase enrollments, improve the AELS, and symbolic moves (such as renaming the Workforce Investment Act to reflect the benefits of education beyond the limited goal of improving the workforce). (Contains 19 references.) (YLB)

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The Adult Education and Literacy System (AELS) in the United States:

Moving From the Margins to the Mainstream of Education

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February 2, 2000

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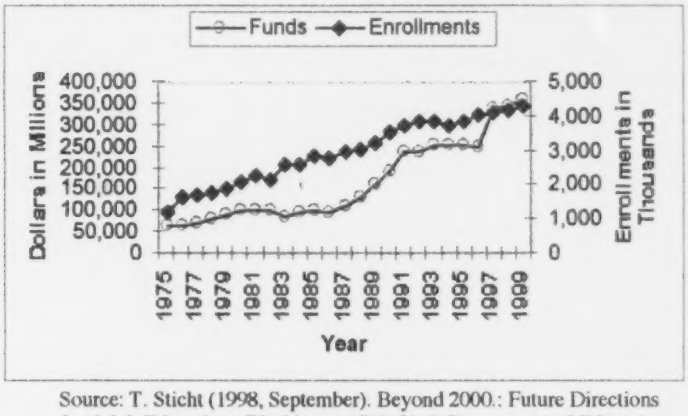
The Adult Education and Literacy System (AELS) in the United States: Moving From the Margins to the Mainstream of Education

> "What would happen if the whole world would become literate? Answer: not so very much, for the world is by and large structured in such a way that it is capable of absorbing the impact. But if the whole world consisted of literate, autonomous, critical, constructive people, capable of translating ideas into action, individually or collectively – the world would change."--Johan Galtung (1975) presentation to the International Symposium for Literacy, Persepolis.

It is now 2000. In the quarter century following Galtung's vision of how the world could be changed, the United States has witnessed a phenomenon unprecedented in our nation's educational history. Tens of millions of adults have taken action to change their lives, to become more educated, literate, autonomous, critical, and constructive to change the world around them.

From 1975 through 1999 the number of adults enrolled in the diverse programs funded wholly or in part through the federal government's Division of Adult Education and Literacy increased at an average rate of some 118,000 per year, growing from around 1.2 million in 1975 to over 4.3 million in 1999.

Figure 1. Enrollments and funding levels for the U. S. federal adult education and literacy program, 1975-1999.



Source: T. Sticht (1998, September). Beyond 2000.: Future Directions for Adult Education. Washington, DC: U. S. Department of Education, Division of Adult education and Literacy.

To place these data on adults seeking continuing education in perspective, the Digest of Education Statistics for 1998 points out that in 1998 the K-12 system served some 46.8 million enrollees while the post-secondary, higher education system enrolled about 14.6 million students. In this same year, the adult system of non-credit, non-formal education had enrollments of some 4.2 million, almost ten percent as many enrollees as the entire K-12 system and over a quarter as many enrollees as the higher education system.

What is even more remarkable than the sheer numbers of adults enrolling in adult education and literacy programs is the fact that, for the most part, these adults are the

very ones that numerous studies and reports over the decades say do not want or seek continuing education. Most studies of adult education point out that when it comes to education, the "rich get richer," meaning that those with the most education are the ones who seek out more education.

Adult Education and Literacy System 1992-1996

Over 15 million adults, most without high school diplomas, sought non-credit, continuing education in the United States. They include:

The Working Poor	4.9 million
Welfare Recipients	2.2 million
Unemployed	6.2 million
Immigrants	3.4 million

Source: Division of Adult Education and Literacy (1998, January). Adult Education: Human Investment Impact 1992-1996. Washington, DC: U. S. Dept. of Education.

But what we see, now, at the dawn of the 21st century , is the extraordinary picture of millions of citizens with less formal education actively seeking and engaging in educational opportunities. This is illustrated by the fact that during the five year period from 1992 through 1996 over 15.5 million adults with less than a 12th grade education enrolled in the national adult education and literacy system. About a third of these adults enrolled in studies of English as a second language to improve their English language skills. A little over a third enrolled in adult basic education courses to improve their communication and thinking skills and to obtain knowledge for various life activities, including progression toward secondary credentials. Over a quarter pursued education leading to a high school diploma or its equivalency.

The Growing Value of the Adult Education and Literacy System (AELS) in the New Millennium

The fact that millions of adults are seeking adult education and literacy development is a testimony to their recognition of the growing value of knowledge and skills in the new information age. Many of them have had their eyes opened to the demands for education and literacy in the wake of massive technological and organizational changes in our nation's workplaces. Indeed, the Organization for Economic Co-operation and Development (OECD) reported in 1992 that in many industrialized nations, including the United States, the formal educational system for children was not as effective as it should be in producing adults with the literacy skills needed to meet the demands of contemporary society, particularly the new world of work. Many of the young adults entering the workforce were considered lacking in basic reading, writing, and mathematics skills. According to the OECD, "functional illiteracy" was a growing problem in the workforces of many industrialized nations.[1] (p. 10)

The OECD considered that in many cases the problem was not one of failing to meet literacy standards upon entrance into the workforce, but rather one in which the literacy demands of jobs in particular workplaces had changed. In this case, previously qualified workers faced new literacy demands for which they were no longer qualified.[1](p. 13)

While acknowledging the paucity of trustworthy data, the OECD estimated that about one-third of workers could do their jobs better if they were more literate. In one survey, about one-third of Canadian f irms reported serious difficulties in introducing new

technology and increasing productivity because of the poor skills of their workers. In Britain, a survey suggested that "Britain's general 'under-education' would create serious economic problems when competition with more highly-skilled nations intensified in the single European market" (The Daily Telegraph, September 30, 1992). Studies in the U. S. indicated that more highly literate personnel who used their literacy skills while performing job tasks such as automobile repair or supply clerks' jobs, showed productivity increases of as much as ten to fifteen percent.[2](pp. 17-18)

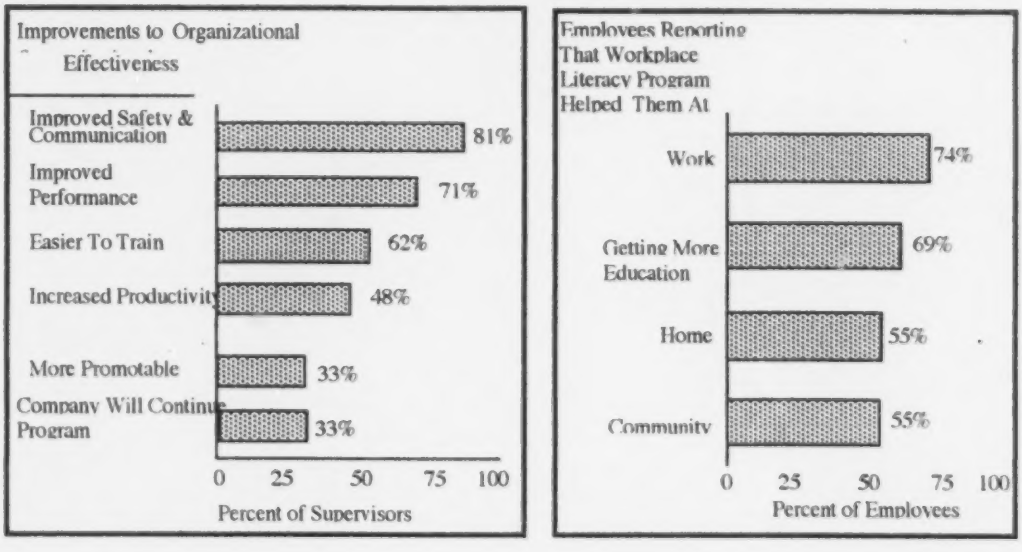
Investments in adult education and literacy development may provide "double duty dollars," returning benefits on the job, at home, in the community and at school.

Adult Education and Literacy Programs Can Increase Effectiveness at Work, at Home, and in the Community

In recent years a body of research has emerged on adult education and literacy development programs in workplaces that teach English, reading and mathematics skills integrated with job knowledge. The general results of this body of research is that such programs may contribute not only to improving an adult's job-related literacy and mathematics skills, but also to improved productivity on the job, increased reading to children at home, thereby better preparing them for and helping them in school, increased use of language and literacy skills in the community, and the decision to pursue further education. [15]

In one study, ten manufacturing companies in the area of Chicago, USA, making products ranging from hydraulic valves to bubble gum, provided basic English language, reading and mathematics education for over 700 employees. In evaluation studies

Figure 2 Effects of Workplace Literacy Programs in the Chicago Area, 1994



conducted in six of the companies, many supervisors reported that the programs had a variety of positive effects on organizational effectiveness, including increased

productivity, employees became easier to train, their job performance, safety, and communication improved, many became more suitable for promotion, and a third of them said their companies would continue the programs.[3] (pp. 6-9)

The majority of the employees themselves said that the workplace literacy programs had helped them not only at work, but also at home and in the community, and most were encouraged to seek further education (Figure 2).

Communities of better educated adults who are workers, citizens, and parents may attract better paying jobs into the community which provide a higher tax base that will support better social services (law enforcement, day care, recreational facilities, transportation, etc.), and promote a safer, supportive community that can produce drug and violence free schools and influence better teaching and greater success for children in school .

In one workplace education project management, labor union members, and educators got together at AC Rochester in upstate New York, a supplier of components for General Motors automobile manufacturing, and developed adult education programs in basic education, English as a second language, secondary school completion and basic reading skills programs.

To accomplish the improvement of the workforce through the K-12 school system with children will take several generations. The economic return to investment in adult education is immediate.

This was done because it was discovered that many employees could not benefit from training that was needed to convert the manufacturing plant to a high performance organization in which each worker had to take on more responsibility for quality control, work scheduling and so on. As a consequence of the company's reorganization and education programs, a new billion dollar contract was signed with a foreign nation and General Motors moved new work into the plant.[6](pp. 49-55) This suggests that organizational changes and greater investments in adult education may lead to economic growth in the community and provide a better tax base for community activities and facilities.

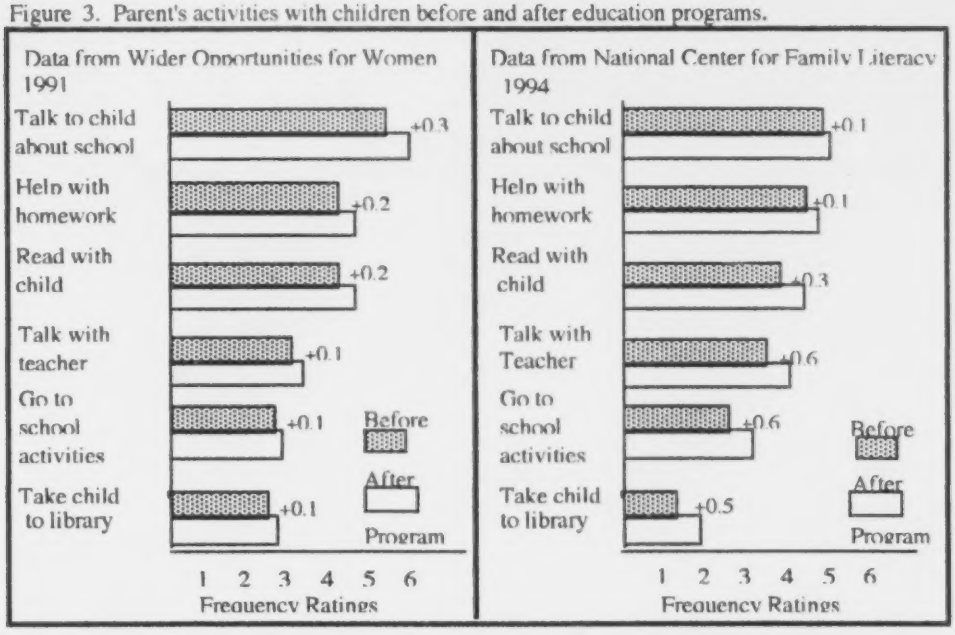
Importantly, these benefits to organizational, individual, family and K-12 school effectiveness occur directly following adult literacy programs and serve to make the current workforce more productive.

Adult Education and Literacy Programs Can Help Adults Improve Their Children's Schooling

Improved education of adults may lead not only to a better tax base and improved community social services, it may also stimulate a greater interest on the part of parents to become involved with the education of their children. Research by Wider Opportunities for Women in Washington, DC studied the effects of women's participation in basic skills training on (1) their behavior toward their children, (2) their

interactions with teachers and participation in school activities, and (3) their children's behavior in school.[7]

Figure 3. Parent's activities with children before and after education programs.



Mothers reported that, as a result of their participation in the basic skills programs, they spent more time with their children talking about school, helping with homework, and other activities. They spent more time going to and helping with school activities and they talked more with teachers about their children's education. (see Figure 3, along with comparable data from the National Center for Family Literacy in 1994;[12] all improvements are statistically reliable). WOW mothers also reported that their children liked and attended school more, and they made improvements in their school grades, test scores , and reading.

Given the aims of compensatory education programs such as Head Start, where billions of dollars are spent to overcome what are actually limitations in the parent's education, the evidence showing that adult education and literacy development can change parent's educationally relevant behaviors with their children argues for a view of the adult education and literacy system as an educational system that *prevents* educational problems of children, rather than as programs that simply offer "remedial" education to adults. It is consistent with the evidence to argue that the real head start starts with the heads of the family!

Adult Education and Literacy Programs Can Help Adults Improve Their Own and Their Children's Health

For schools to have an effect, they must have healthy students prepared to learn. A very large body of research in both developed and developing nations suggests that parents', and especially mothers' education level is one of the most important determinants of school participation and achievement.[10,11] Despite this relationship of mothers' education to children's educability, many nations have supported in the past, and many continue into the present to support policies that relegate girls and women to a secondary place in education. It is for these reasons that the United Nations called for greater equality of educational opportunities for girls and women in its declaration of the International Year of the Family.

Table 1. Some effects of higher levels of mother's education at different phases of child bearing and schooling.

Phase of child bearing/schooling	Effect of higher levels of mother's education
Before pregnancy	Higher economic productivity; better personal health care; lower fertility rates; smaller families
During pregnancy and at birth	Better prenatal care; more fullterm births; higher birthweight babies; fewer learning disabilities
Before going to school	Better health care; better development of language, cognitive, and literacy skills; better preparation for schoolwork
During the school years	Higher participation rates in the schooling process; better management of homework; better advocacyfor children's education and negotiation of school/child conflicts; higher academic achievement by children

The failure to focus resources on girls and women shows itself in the international literacy statistics compiled by UNESCO. These statistics indicate that women, that is, female adults over the age of 15, comprised almost two-thirds of the 963 million adult illiterates in the world in 1990. Of the 116 million of the world's children below the age of 11 who were unable to attend primary school in 1985, almost two-thirds were girls.[12] (p. 13)

Table 1 summarizes research on the effects of mothers' education on children and their educational development at various developmental stages, beginning with the role of education on the initial propensity to have children. Girls' and mothers' education is important in determining fertility rates, that is, just how many children there will be in the household. The latter, in turn, is related to the preschool cognitive development of children and their subsequent achievement in school.

Given that conception and motherhood have occurred, the next question concerns the pre- and postnatal conditions that permit the birth of healthy children who will survive. Mortality rates and the health of young, preschool children determine how many children will be available to benefit from primary education. Mothers' education level is a major factor in ensuring high survival rates and healthier children with whom the schools can work.

More highly educated mothers not only produce healthier preschool children, they also produce children who are better prepared with knowledge, oral language and literacy skills upon entry into primary schooling. There is no denying the importance of preschool parent and child interaction, particularly in activities such as reading together, for the development of cognitive, oral language, and preschool literacy skills that will later serve the child well in the schools.

Finally, parents', and especially mothers' education is strongly related to children's tendency to stay in school and to achieve at higher levels. Mothers' education level is particularly important for students in the later grades of school, where more difficult assignments may make more demands on the mother's knowledge for help with homework, and where the mother's knowledge of and willingness to become involved in the schools on behalf of her children may make the difference between children's school success or failure.

The available research supports the conclusion that parents' education levels exert a strong, positive influence on family size, health, and the achievement of children in school. Additional research by the World Bank indicates that in Egypt and Thailand, mother's education level is positively related to higher aspirations for and participation in education by their daughters.[13] In these studies, mothers' aspirations for their daughters' education exceeded the aspirations of fathers.

The finding that mothers' education may lead to higher aspirations for and education of girls is significant because of recent research on education, gender and economic development.[14] This cross-national research in 96 countries "found clear evidence that in less-developed countries, especially some of the poorest, educational expansion among school-age girls at the primary level has a stronger effect on long-term economic prosperity than does educational expansion among school-age boys." All of these positive effects of women's education offer compelling arguments for greatly expanding and improving our adult education and literacy system, and to make certain that women are provided access to this system.

Adult Education and Literacy Development
Can Help the Brain Grow and Stay Healthy During Adulthood

For over a decade, the James S. McDonnell Foundation in St. Louis has supported extensive research in neuroscience. Recently, John Bruer, President of the Foundation has written a new book entitled "The Myth of the First Three Years" (The Free Press, 1999) in which he explains that the findings of neuroscience do not support the claims made

about early stimulation of infants and children under three years of age and their brain development. Bruer[16] has discussed major misconceptions that educators have of brain science. For instance:

(1). Claim: Enriched early childhood environments causes synapses to multiply rapidly. Bruer states, "What little direct evidence we have – all based on studies of monkeys - indicates these claims are inaccurate....The rate of synaptic formation and synaptic density seems to be impervious to quantity of stimulation. ...Early experience does not cause synapses to form rapidly. Early enriched environments will not put our children on synaptic fast tracks"[16] (pp. 13-14).

(2). Claim: More synapses mean more brainpower. Bruer states, "The neuroscientific evidence does not support this claim, either. ...Synaptic densities at birth and in early adulthood are approximately the same, yet by any measure adults are more intelligent, have more highly flexible behavior, and learn more rapidly than infants." [16] (pp. 14-15).

Bruer goes on to say that, "Truly new results in neuroscience, rarely mentioned in the brain and education literature, point to the brain's lifelong capacity to reshape itself in response to experience"[16] (p. 17). In his new book (1999) he references work in adult literacy education to make the point that, "Adult literacy programs provide additional evidence that acquiring and improving literacy skills is not time-limited or subject to critical period limitations." (p. 112). He says, "The limiting factor in vocabulary growth, and presumably for some of the other things Verbal IQ measures, is exposure to new words, facts, and experiences. The brain can benefit from this exposure at almost any time- early childhood, childhood, adolescence, adulthood, and senescence."(p. 177)

"Contrary to dogma, the human brain does produce new nerve cells in adulthood....Birth of nerve cells, or neurons, in the adult brain has been documented in the hippocampus, a region important in memory."
Kempermann & Gage, Scientific American, May 1999

For adult education and literacy programs, Bruer makes the important policy argument that with a better understanding of the limitations of present day neuroscience for understanding education, "We might question the prudence of decreasing expenditures for adult education or special education on the grounds that a person's intellectual and emotional course is firmly set during the early years." (p. 26) This is a myth he rejects and it is an important point in light of the current situation which places over $10 billion dollars in early childhood and in-school compensatory education programs and less than five percent of that in programs for educating the adult parents of these same school children.

Mainstreaming the Adult Education and Literacy System
Is Central To Achieving National Education Goals

In most industrialized nations the adult education and literacy system is a marginalized, under funded and poorly appreciated component of national education activities. This is graphically illustrated in the United States by the U. S. Department's Digest of Education Statistics for 1998. The Digest presents a schematic diagram called "The Structure of Education in the United States." The figure reads from Kindergarten at the bottom to post-graduate college studies at the top and includes vocational/technical and two and four year colleges as post-secondary education programs. Noticeably missing is the adult education and literacy system. But a close inspection of the figure reveals a brief footnote in small print at the bottom margin of the figure which reads, "Adult Education programs, while not separately delineated above, may provide instruction at the elementary, secondary or higher education level."

Despite this literal "marginalization" of the adult education and literacy system in the graphic by the Digest of Education Statistics for 1998, the data presented earlier argue for a more centralized role for adult education in our national education reform activities.

Goal 6 of the National Education Goals is called "Adult Literacy and Lifelong Learning." It states that every American will be literate and will possess the knowledge and skills necessary to compete in a global economy and exercise the rights and responsibilities of citizenship. While Goal 6 is the only goal that focuses directly upon adults, achieving most of the other seven goals rests largely upon success in achieving Goal 6.

Goal 1, "School Readiness", calls for all children in America to start school ready to learn. This places direct responsibility upon youth and adults, both parents and parents-to-be to provide proper planning for the conception of children, the prenatal care of babies, and the post-natal, preschool care and stimulation that produces children with the oral language skills and experience with literate environments that will prepare them to enter the culture of the school ready to learn. Undereducated youth and adults whose literacy skills are low will likely find it difficult to contribute to the achievement of Goal 1 unless they achieve Goal 6 - literacy.

Goal 2 calls for the high school graduation rate to increase to a least 90 percent, while Goals 3 and 5 call for greater achievement in learning by students across the grades, with an emphasis upon science and mathematics. Goal 8 calls for greater parental participation in promoting the social, emotional, and academic growth of children.

Despite the central importance of adult education and literacy development for achieving all of our national education goals, and despite the unparalleled success of the adult education and literacy system in attracting millions of less well educated adults committed to continuing their education, the system has operated for decades as an under funded program on the margins of our nation's K-12 and higher education systems.

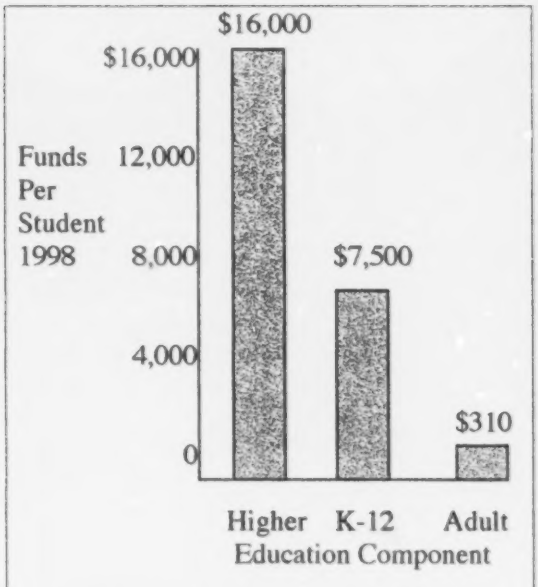


Figure 4. Funds per enrollee in three components of the U. S. education system.

At a time when business and industry, the armed services, civic organizations and communities are all crying out for higher skilled and better educated citizens, and billions upon billions of dollars are poured into early childhood and K-12 education to upgrade the skills of future generations, the adult education system that today attracts millions of young, middle aged and older adults goes begging each year for adequate funds, for full time teachers, and for teaching materials to meet even the most basic needs of students.

The Digest of Education Statistics for 1998 states that with expenditures of around $350 billion, the K-12 system spent close to $7500 per enrollee and with funding of some $233 billion the higher education system spent roughly $16,000 per enrollee. But the adult education system, which enrolls and serves the most difficult to educate segments of our adult population, received combined federal and state funding in 1998 of $1.3 billion for 4.2 million enrollees, only about $310 per enrollee.

It is ironic that at a time when we are spending billions of dollars on preschool and in-school compensatory education programs to help more children reach adulthood with a high school diploma in their hands, we balk at providing adequate funding to help these same children when they fail to get their high school diploma and, as adults and parents, they seek to continue their schooling so that they can receive their high school diploma or its equivalency. We thereby deprive millions of adults from serving as educational role models for the very children we spend billions on trying to help outside their homes in special programs away from their parents.

It places great responsibility upon policymakers to increase their attention to and provide the resources for creating a system of adult literacy education that is not a marginalized add-on to our educational services but is rather a valued, integral component of the educational commitment of the nation. Why hasn't this been done? It seems likely that there are many reasons, but some of the more insidious ones relate to how our society thinks about human development and ideas such as brain development, intelligence and educational achievement.

The Adult Education and Literacy System:
The Marginalized Education System We Should Care More About

> *Mar•gin•al•ize (mär2jú-nú-lhz1) v. tr. mar•gin•al•ized mar•gin•al•iz•ing mar•gin•al•iz•es 1. To relegate or confine to a lower or outer limit or edge, as of social standing. --American Heritage Dictionary*

The social and economic status of the millions of adults seeking education and literacy development contribute to their being considered , by and large, a marginalized group according to the dictionary definition. As a group they earn well below the medium income of the nation, they live largely, though not exclusively, in areas with lower education where there are higher than average crime rates, unemployment rates, and higher rates of other social problems (drug usage, teenage pregnancy, etc.). Their neighborhoods are generally those recognized as of lower social standing and they generally exercise little or no political power. So it is easy to relegate their concerns to a back burner, to place their educational system in a footnote at the margins of our major educational concerns, and in general to dismiss them when it comes time to talk about educational funding resources.

The National Newspaper Index for the years 1982 to 1999 cites 6, 742 articles about the Public Schools, 2,604 about Higher Education, but only 53 about Adult Literacy.

Not only is the adult education and literacy system poorly funded, like the adults it serves, the adult education and literacy system is also clearly of lower social standing. This shows itself dramatically by the fact that there is practically no coverage of the system by the news media. While the K-12 and college systems are the subject of literally hundreds of news stories per year in the local newspapers, television, and radio, there are few, if any, stories about the adult literacy education system. Occasionally, perhaps on or near the yearly International Literacy Day, the media will run a human interest story about an adult who received literacy tutoring, or advertise a Literacy Day event. But one looks back over the decades in vain for the types of investigative news stories that provide citizen oversight of the K-12 and college systems.

From the lack of attention to it, it is easy to get the impression that few people know about or care about the adult literacy education system. The few that do care about it are more than likely the adult educators themselves and the adult students that have come into contact with the system. But why is this? Why is this education system and the adult literacy students it serves marginalized by the larger society?

Cultural Beliefs That Encourage the Marginalization of the Adult Education and Literacy System

There are cultural beliefs about cognitive development and when it is possible and/or desirable to develop it that appear to contribute to the marginalization of adult education and literacy students and the system that serves them.

Early Childhood and Intellectual Development. One of the beliefs in our culture is that the brain and its intellectual capacity is developed in early childhood. This was lightly touched on, above. But to elaborate, the idea is that there is a widespread belief that if children's early childhood development is not properly stimulated, then there is likely to be intellectual underdevelopment leading to academic failures, low aptitude, and social problems such as criminal activity, teenage pregnancy and welfare. It will be difficult if not impossible to overcome the disadvantages of deficiencies in early childhood stimulation later in adulthood. So why invest much in adult education?

That these beliefs about the consequence of early childhood development are widespread is revealed by articles written by prominent journalists in major newspapers. For instance, on Sunday, October 13, 1991 the *San Diego Union* newspaper reprinted an article by Joan Beck, a columnist for the *Chicago Tribune*, that argued for early childhood education because, "Half of adult intellectual capacity is already present by age 4 and 80 percent by age 8, ... the opportunity to influence [a child's] basic intelligence - considered to be a stable characteristic by age 17 - is greatest in early life."

A year earlier in the same newspaper on October 14, 1990 an adult literacy educator was quoted as saying, "Between the ages of zero to 4 we have learned half of everything we'll ever learn in our lives. Most of that has to do with language, imagination, and inquisitiveness."

A report by the Department of Defense shows how these beliefs about the possibility of doing much for adults after age 17 can affect government policy. After studying the job performance and post-service lives of "lower aptitude," less literate personnel, the report claimed that they had been failures both in and out of the military. Then, on February 24, 1990, the Director of Accession Policy of the Department of Defense commented in the *Washington Post* newspaper, "The lesson is that low-aptitude people, whether in the military or not, are always going to be at a disadvantage. That's a sad conclusion." A similar report of the Department of Defense study was carried in the *New York Times* of March 12, 1990. Then on April 8, 1990 Jack Anderson's column in the *Washington Post* quoted one of the Department of Defense researchers saying, "...by the age of 18 or 19, it's too late. The school system in early childhood is the only place to really help, and that involves heavy participation by the parents."

Born to Lose: Bad Genes and Adult Basic Skills. Another widespread belief about intellectual development and learning in adulthood is that because of their inferior genetic endowment, many adults are unable to benefit much from childhood education and they cannot benefit much from adult education and training either.

The 1994 book, *The Bell Curve: Intelligence and Class Structure in American Life*[17] created considerable controversy because it promoted the foregoing belief. It strongly implied that intelligence is largely genetically determined, not subject to much modifiability, and a strong influence on many of the social problems that our nation faces, including school dropouts, crime, poverty and welfare.

In a January 7, 1997 article in the *Washington Times* , a prominent newspaper published in Washington DC and read by many members of Congress, columnist Ken Adelman wrote:

> The age-old nature vs. nurture debate assumes immediacy as the new Congress and new administration gin up to address such issues as poverty, crime, drugs, etc.
>
> This, the most intellectually intriguing debate around, is moving far toward nature (and far from nurture) with new evidence presented by an odd pair - gay activist Chandler Burr and conservative scholar Charles Murray.
>
> In brief, their new findings show that 1) homosexuality and 2) educational-economic achievement are each largely a matter of genes - not of upbringing.
>
> If true, as appears so, the scope of effective government programs narrows. Fate, working through chromosomes, bestows both sexual orientation and brainpower, which shape one's life and success.
>
> Little can be altered - besides fostering tolerance and helping in any narrow window left open - through even an ideally designed public program. (page B-6)

The juxtaposition of homosexuals and those of lower educational and economic achievement is an obvious rhetorical device meant to stir negative emotions about both groups.

Dispelling These Harmful Cultural Beliefs

These beliefs about human cognitive development contribute mightily to the marginalization of the adult education and literacy development system and the students it serves. They denigrate as apparently futile the work of those involved in the language and literacy education of youth and adults in any setting, including the military, job training, corrections, adult basic education, workplace literacy, and family literacy programs. Most sorrowfully, these types of beliefs defame the educational capacity of millions of adults who seek educational assistance in adult education and literacy programs throughout the nation. Many adults may sense these cultural beliefs and incorporate them into their own self-images and come to believe that they are not smart enough to learn much. So they avoid adult education programs.

While there is insufficient room here to completely dispel the beliefs about human intellectual development outlined above in the news media, a partial rebuttal can be given. At the outset it should be noted that none of the assertions in the news articles were true.

Myths of Intelligence. As indicated above, Joan Beck was quoting research by Benjamin Bloom in the 1960s. But Bloom did not show that half of one's intellect was achieved by age 4. Rather, he argued that IQ at age 4 was correlated .7 with IQ at age 17. Since the square of .7 is .49, Bloom stated that half of the variance among a group of adults' IQ scores at age 17 could be predicted from their group of scores at age 4. But half of the *variability among* a group of people's IQ scores is a long way from the idea that half of a given person's IQ is developed by age 4. This is not even conceptually possible because for one thing there is no universally agreed to understanding of what "intelligence" is. Further, even if we could agree on what "intelligence" is, there is no such thing as "half of one's intellect" because no one knows what 0 or 100 percent intelligence is. Without knowing the beginning and end of something we can't know when we have half of it.

Regarding the news articles about the Department of Defense studies of "low aptitude" troops, the conclusions were based on analyses of the job performance of hundreds of thousands of personnel in both the 1960s and 1980s with Armed Forces Qualification Test (AFQT) scores between the 10th and the 30th percentiles, the range of scores which the Department of Defense studies called "low aptitude." But contrary to what the Department of Defense researchers and accession policy maker stated, the actual data show that in both time periods, while the low aptitude personnel did not perform quite as well as those personnel with aptitudes above the 30th percentile, over 80 percent of the low aptitude personnel did, in fact, perform satisfactorily and many performed in an outstanding manner.[18] As veterans they had employment rates and earnings far exceeding their rates and earnings at the beginning of the study.[19] Further investigation by the media would have revealed these discrepancies between what the Department of Defense's researchers said and what the actual findings were.

None of the articles in the New York Times, Chicago Tribune, Washington Post, Washington Star, or San Diego Union, about early childhood, low aptitude, disadvantaged adults or the genetic basis of low educational or economic achievement were true.

Regarding the genetic basis of intelligence, although *The Bell Curve* book cited by Adelman presents detailed analyses of social problems and IQ, what is not generally understood is that almost all of the analyses relating IQ with social problems were made using the Armed Forces Qualification Test (AFQT) as the measure of IQ. What should be of interest to policymakers, however, is that the AFQT does not measure IQ. This was made clear in the early 1980s when official Department of Defense spokespersons testified to Congress that the Armed Forces Qualification Tests (AFQT) are *not* tests of intelligence or IQ.

Richard Danzig, Principal Deputy Assistant Secretary of Defense for Manpower, Reserve Affairs, and Logistics spoke before a congressional committee. "The testing specialists note that we ought not to confuse these aptitude tests with intelligence tests as such" Danzig said. "Naturally there is some correlation between the two types of tests but to speak of somebody as being in category IV or category V is not per se to make a judgment about his intelligence. ... In fact, we don't want to test IQ which is traditionally

the aptitude of school children to perform well in school. We want to test their ability to learn to perform military jobs. That is somewhat related to intelligence, not alone intelligence however. I want to avoid that implication" (Congressional Record, U. S. Senate, 1980, p. 1298)

Instead of measuring IQ, the AFQT actually measures the basic skills of reading and mathematics. The AFQT is made up of four sub tests: word knowledge (vocabulary), paragraph comprehension, arithmetic word problems, and mathematics knowledge (facts of geometry, algebra). Scores on the AFQT are highly correlated with years of education. They are also highly correlated with the Tests of Adult Basic Skills (TABE), the Adult Basic Learning Exam (ABLE), the Nelson-Denny Reading Test and other tests of basic skills.

Because the AFQT actually measures basic skills (reading and mathematics), and not IQ, all of the analyses in *The Bell Curve* can be reinterpreted as relationships between basic skills and various social indicators. A couple of these reinterpretations are given below (The data below are for whites only, with socioeconomic status held constant).

Poverty . The bell curve of basic skills indicates that 48 percent of the white poor in 1989 came from the bottom 20 percent in basic skills.

Note that the foregoing does not say that 48 percent of those in the bottom 20 percent of basic skills were poor. It says that 48 percent of the poor came from those in the bottom 20 percent of basic skills. In fact, *most of the adults in the lowest levels of basic skills were not poor*. Some 74 percent of young, white adults (with socioeconomic status held constant) who were in the lowest 2 percentiles of basic skills were not in poverty. Over 85 percent of those at the 16th percentile were not in poverty. This indicates that one's poor basic skills (what *The Bell Curve* called IQ) do not automatically cause one to be poor. Still, poor basic skills were a more accurate predictor of poverty than parent's socioeconomic class. This is good news because while adults cannot go back and change their parent's socioeconomic status, they can, and millions do, change their own basic skills by studying and learning in the adult education and literacy development system.

High School Dropouts (white, permanent dropouts who did not later return to get the GED). The bell curve of basic skills shows that two-thirds of high school dropouts came from the bottom 20 percent in basic skills.

This is good news because while one's poor basic skills do not automatically cause one to be a permanent school dropout, poor basic skills are a more important predictor of permanently dropping out than is parent's socioeconomic class. Yet, some 35 percent of young, white adults of average socioeconomic status who were in the lowest 2 percentiles of basic skills were not permanent dropouts. Some 75 percent of those at the 16th percentile were not permanent dropouts. Importantly, parent's socioeconomic status is a more important predictor than poor basic skills for those who are temporary dropouts and who later get their GED. This suggests a strong role for parents and the social groups

they belong to in providing the *social capital* needed to motivate young adults to get their high school diploma or GED.

There are other data in *The Bell Curve* book to help us understand the relationships of basic skills to employment, crime, and other social concerns. But for now it is sufficient to note that the arguments in *The Bell Curve* about IQ and its immutability, are actually arguments about the basic skills of reading and mathematics. If reading and mathematics skills contribute to or actually constitute "IQ," as *The Bell Curve* books suggests, then there is evidence to argue that, contrary to the conclusions of the journalists in the *Chicago Tribune, Washington Post* and *Washington Star*, "IQ" can be improved in adult education and literacy development programs. A large body of evidence in published literature indicates that the basic skills are teachable and learnable across the life span (see the numerous studies in Sticht & Armstrong[8] showing improved basic skills by adults in adult education and literacy programs across the nation).

The Adult Education and Literacy System Teaches Topics Not Taught in the Public Schools

"In one of our classes, after having workshops on diabetes and offering diabetes screenings, some students discovered that they had very high sugar glucose. In another class, a group of GED students visited the holocaust museum for the first time and were touched in unexpected ways. In a third class, a woman moved to the shelter for battered women after a presentation by them on the issue of domestic violence.

The presentations on the above mentioned topics were made in the context of learning a language, so students improved their language communication skills. At the same time, certain events took place in their lives that lead to an improvement in their standard of living. The combination of the increased literacy together with the impact in life is what can make literacy so powerful."
-Andres Muro, Adult Education and Literacy Program Director, El Paso, Texas, January, 2000

Rethinking The Basic Nature and Mission of the Adult Education and Literacy System

Misunderstandings about the adult education and literacy system have contributed to its being considered by many as a temporary, remedial, second chance system for undereducated, marginalized adults that will not be needed once the schools are reformed and all children master the basic skills before graduating.

One misunderstanding is that adult "basic education" consists merely of recapitulating what children learn in the elementary and middle grades of the K-12 system. Because millions of adults need to improve their reading, writing, and other communication skills, many tend to think of them as receiving "basic education" like children do in the elementary grades. That is why they think of the adult education and literacy system as a "remedial" or "second chance" program.

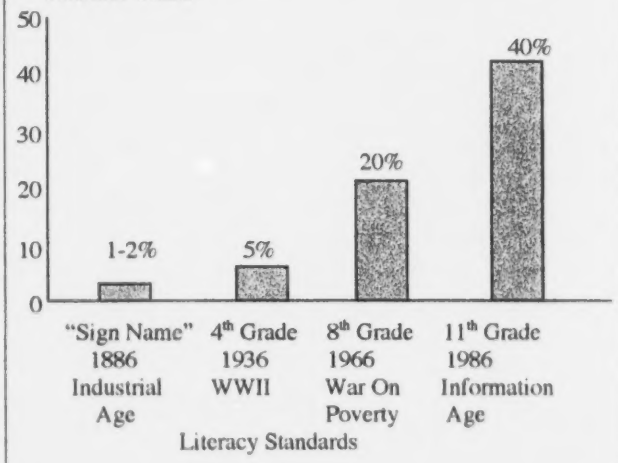
But nothing is farther from the truth. Of course, most adult "basic education" consists of learning that includes the improvement of communication and mathematics skills. But the adult programs tend to develop these skills in the context of the acquisition of knowledge that is not ordinarily taught to children in the public schools of the K-12 system, or for that matter in most colleges. This includes much practical "life skills"

knowledge about health care, parenting, transportation, legal services, consumerism, and so forth. Because this knowledge is not generally taught in the K-12 system, the adult education and literacy system offers the "first chance" not the "second chance" for millions of adults to learn this important knowledge.

A second misunderstanding in thinking about the adult education and literacy system as a "remedial," "second chance" education system is the idea that the system serves only adults who have had a first chance at an education in the K-12 system. But this is incorrect. Today, large numbers of those adults who seek education in the adult education and literacy system are immigrants who have never studied in the United States. They are seeking to learn English as another language. Many may be highly educated in their native language, while many others may not be well educated or educated at all in their native language. These millions of immigrant adults are getting their "first chance" at an education in the United States.

A third misunderstanding leading to thinking that the adult education and literacy system is a "remedial," "second chance" system that will go away once the K-12 system is reformed is based on the incorrect idea that educational standards are static and once people are educated to the contemporary standards they will not need the adult education and literacy system. But this is inconsistent with the obvious fact that new knowledge is constantly being created so rapidly that no one's education during childhood is adequate for them to meet the new demands for learning that the ever changing world creates. And as standards have increased over time, more and more adults whose knowledge and skills were once adequate, find themselves losing ground and, as the data of Figure 1 indicate, millions of them seek out the adult education and literacy system to bring their knowledge and skills up to the new standards. This ratcheting up of educational standards is a process that is likely to continue during the "information and internet age" of the new century.

Figure 5. Percentage of Young Adults in 1986 Failing to Meet Changing Standards of Literacy Across Time



Finally, misunderstanding of the nature of adult "illiteracy" as something that must be "stamped out" instead of recognizing that "literacy" is something to be "stamped in" as a continuous process of acquiring new knowledge and skills has lead to false expectations that the "problem of illiteracy can be solved." Many past and present "campaigns" in both developed and developing nations have sought to "eliminate adult illiteracy once

and for all." Other attempts to "fix the problem at the source" have focussed billions of dollars on early childhood and primary school programs.

However, as indicated by the OECD, the surprising fact is that, while industrialized nations have gotten almost all native born adults to some degree of literacy over the last half century, what has happened is that there has been a growing demand by millions of these literate adults for more education to develop higher and higher levels of literacy. So instead of regarding the adult education and literacy system as a system that will shrink and finally disappear once all adults are "fully literate," we need to understand that the rapidly increasing growth in knowledge has had and will for the foreseeable future continue to have the effect of constantly increasing the numbers of adults who can benefit from the non-formal, learner friendly education system that we have evolved for adult education and literacy development.

Today the adult education and literacy system is positioned to become a "high growth" educational system for the 21st century with the power to reach not only adults, but, through the intergenerational transfer of attitudes and knowledge, to reach children, too.

Strengthening the Adult Education and Literacy System As a Strategy for Making the Nation Smarter

Today the adult education and literacy system is positioned to become a "high growth" educational system for the 21st century with the power to reach not only adults, but, through the intergenerational transfer of attitudes and knowledge, to reach children, too. It has already established itself as a system for continuing education that is actively sought out by a growing segment of the hard-to-reach adult population. Many of these are adults whose knowledge and skills were once adequate for their needs but are no longer. Some are adults whose childhood was frequently unfavorable for acquiring large bodies of knowledge, but whose lives now call for the development of new knowledge and skills. Many do not seek the types of formal, structured education in various "disciplines" that are offered in high schools, colleges and universities. Instead they are looking for the non-formal, "functional" education that helps them achieve short-term goals of a specific nature.

The extraordinary diversity of the adult population, with its range of ages from 16 to over 80, numerous native languages, and all sorts of formal and informal educational backgrounds and life experiences, requires resources, facilities and methods of teaching that are much different from the traditional schools and colleges for students in the K-12 or higher education components of our educational system.

The adult education and literacy system, with its mix of educational providers, ranging from traditional educational institutions such as adult public schools and community colleges to libraries, military bases, prisons, workplaces, churches and a variety of charitable, community-based organizations, comprises the multifaceted system that a

highly diverse population of adults need to have convenient access to and comfortable feelings in while continuing their education.

As we approach the new millennium the federal adult education and literacy program is poised to position itself as a mainstream education system to help traditionally hard-to-reach adults, their children, and their communities participate more fully in the lifelong learning of new knowledge and skills for living in our contemporary global system of work, transportation, information and telecommunications.

To take advantage of this opportunity for making the nation smarter we need to strengthen the adult education and literacy system by taking ***four important steps.***

Step 1: Increase Funding. The present combined federal and state funding of some $300 per enrollee in the adult education and literacy system is unconscionably low. A concerted effort by federal and state governments should be taken over the next five years to increase the per enrollee funding of the adult education and literacy system by at least 50 percent a year. This would raise the funding level from around $300 per enrollee today to just under $2300 per enrollee in 2005. At the federal level, this would mean increasing the funding from around $450 million in 2000 to $3.5 billion in 2005.

Though this would represent a significant growth in federal funds for the adult education and literacy system, it does not even amount to parity with the Head Start program which aims largely to educate the children of many of the very same adults that the adult education and literacy system serves. Through the intergenerational transfer of positive attitudes, language and literacy skills an enhanced AELS might, in fact, lead to a decrease in the numbers of children needing compensatory education. This way some of the increased costs of the expanded AELS might be recovered by producing cost savings in the Head Start and/or Title I elementary school compensatory education programs.

Step 2: Increase Enrollments. The fact that some 5.0 million adults may seek learning in the adult education and literacy system in 2000 is evidence that the system has considerable drawing power. However, over forty million adults lack a high school diploma, and over ninety million are below the levels of literacy established as the standards we should be striving for by the National Governor's Association. So there are many more adults who might presently benefit from participating in continuing education in the AELS.

A large, national, long term educational activity is needed to inform the nation about the existence and benefits of the adult education and literacy system as a continuing education system that is non-formal, convenient, and accommodating of the many needs of non-traditional adult students in a diversity of settings. A national coalition of private foundations, business and industry, the media (newspapers, radio, television, internet), community based organizations, associations of adult educators and adult learners, and various government departments at federal, state and local levels should develop an orchestrated strategy to increase awareness of the adult education and literacy system and

its many benefits for adults of all ages and for the intergenerational benefits of children, too.

Step 3. Improve the Adult Education and Literacy System. Research has revealed that many adult education and literacy programs are characterized by poor attendance, high drop out rates, and little if any improvements in learning. Given the extremely low funding level of this marginalized education system such findings are not unexpected. Efforts underway to improve the quality of adult education programs through better staff development, new technology-based curriculum materials, new methods of assessment of knowledge and skills, and the routine collection of data on indicators of program achievements need to continue in a greatly expanded mode. Much of this effort requires additional research and development.

With fewer than 2 million personnel, the U. S. military services maintain human resources research organizations that spend more than $100 million a year to improve their personnel assessment, training, performance and education policies and practices. By comparison, R & D funds for adult education and literacy development for the entire nation are practically non-existent at less than one-fifth of those of the military. Out of more than two dozen federally funded laboratories and centers for education, only one center is concerned exclusively with adult education, learning and literacy. Given the central position of adult education in achieving national citizenship, economic, and education goals, there is clearly a need for a greatly expanded and improved R & D investment to provide the highest quality education possible for tens of millions of the nation's adults, many of whom have encountered great difficulties in learning both academic and functional knowledge and skills.

Step 4. Symbolic Moves. First, we should agree upon a name for the system that I have been calling the Adult Education and Literacy System (AELS). I have used this name because that is the name of the federal government office that administers the AELS system at the national level. This name also emphasizes that the system aims to help those with the least literacy skills to develop their skills, and to provide continuing education to those with other needs.

The Workforce Investment Act (WIA) should be renamed the Adult Education, Literacy and Workforce Investment Act (AELWIA) to recognize the many returns to investment in adult education and literacy beyond workforce development.

Second, given that we have agreed upon the name as used herein, the Workforce Investment Act (WIA) should be renamed the Adult Education, Literacy and Workforce Investment Act (AELWIA) to recognize the many returns to investment in adult education and literacy development beyond the very important, but limited goal of improving the employability and productivity of the workforce. As data presented in this report have indicated, the adult education and literacy system helps millions of adults become more effective as parents, it helps their children do better in school, it helps adults become better managers of their own and their loved ones health, and it assists adults in becoming more active in the civic activities of their communities. Given these many different returns to investment in adult education, the

AELWIA legislation should reflect the primary and more encompassing goal of investing in adult education and literacy development to achieve all of the important outcomes that the system presently delivers, including workforce development.

Third, any future graphic representations of the education system of the United States that the government produces, such as that given in the Digest of Education Statistics for 1998, should move the adult education system from a footnote at the margin of the figure to a central position within the main body of the graphic. Moving the AELS from the margins to the mainstream in this way will serve as a graphic symbol that the government considers the adult education and literacy system a valuable, stable, and integral component of our nation's education system, and so should others.

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